

REMARKS

In the Office Action, the Examiner objected to claims 18 and 19 and rejected claims 1-17 and 20-39 under 35 USC §103. Specifically, the Examiner stated that claims 18 and 19 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. In addition, the Examiner objected to claims 1, 5, 7, 13, 18, 20, 21, 24, 31, and 34-39 because the claims contain the phrase "capable of." Applicant respectfully submits that claim 35 does not contain the phrase "capable of." However, the remaining claims have been amended accordingly.

The claims have been amended to correct minor informalities in response to the claim objections and to further clarify the subject matter regarded as the invention. In addition, claim 18 has been amended to include all of the limitations of the base claim and any intervening claims. Claim 6 has been cancelled. In addition, claims 40-43 have been added. Claims 1-5 and 7-43 remain pending. The claim rejections are fully traversed below.

Reconsideration of the application is respectfully requested based on the following remarks.

REJECTION OF CLAIMS 1-18 UNDER 35 USC §103

In the Office Action, the Examiner rejected claims 1, 5, 20, and 24 under 35 USC §103 as being unpatentable over Lee et al., U.S. Patent No. 6,535,493, ('Lee' hereinafter) in view of Chiou, U.S. Patent No. 6,473,413, ('Chiou' hereinafter). This rejection is fully traversed below.

Lee discloses a Mobile Internet Communication Protocol. See title. The mobile unit associates with an access point which serves as a home agent. When the mobile unit roams and is away from its home network, the apparatus discovers a physical location of the mobile unit by sending an agent advertisement from the access point. If the location of the mobile unit is not at the home network, the apparatus associates the mobile unit with one of the access points on the foreign network which serves as a foreign agent. Next, the apparatus registers the mobile unit with the home agent, encapsulates original data received by the home agent which is destined for the mobile unit, forwards encapsulated data to the foreign agent, and converts the encapsulated data to the mobile unit via the foreign agent. See Abstract. Lee relates only to mobile units supporting Mobile IP. Specifically, registration requests are generated by the mobile unit. See col. 9, lines 11-24. Lee appears to describe standard Mobile IP practices for enabling a mobile unit to roam without changing its IP address. See col. 2, lines 33-48; col. 3, lines 43-55.

Chiou discloses a method of integrating the communication mechanisms of the Inter Access Point Protocol (IAPP) and mobile IP. Specifically, a mobile station is allowed to roam among various APs in different IP subnets. When a mobile station roams to a new IP subnet, it will issue a reassociation request to an Access Point A in the new IP subnet. In response to the reassociation request, the Access Point A will need the IP address of the previous Access Point B in the previous IP subnet to send the handoff request to the Access Point B. So, the Access Point A can find the IP address of the Access Point B via the communication mechanism of mobile IP of IP layer and then send the handoff request frame to the Access Point B. In turn, upon receiving the handoff request frame, the Access Point B deletes the record of the mobile station in the association table and then sends the handoff response frame back to the Access Point A. The unicast handoff response frame will be forwarded to the Access Point A. Consequently the Access Point A can complete the handoff

procedure. See Abstract. Thus, Chiou discloses a method of enabling a mobile station supporting Mobile IP to roam among various APs. This is accomplished through a communication mechanism established between APs, as described above. This is done without altering the mobile IP and IAPP protocol. See col. 2, lines 48-54.

The claimed invention provides proxy mobile node support for a node that changes its location within a network. It is important to note that the proxy support is provided, even where the node does not support Mobile IP. In other words, the node need not support Mobile IP in order for the claimed invention to function. This is accomplished, in part, through the use of control messages sent between an access point and a Foreign Agent. Neither of the cited references, separately or in combination, discloses or suggests supporting proxy support for a node that need not support Mobile IP. In fact, since the references disclose only a node that composes registration requests on its own behalf, the references teach away from the claimed invention, which enables a Foreign Agent to perform proxy registration and de-registration on behalf of a node. Moreover, neither of the cited references, separately or in combination, discloses or suggests sending control messages between an access Point and a Foreign Agent in the manner claimed.

For instance, claim 1 recites A Foreign Agent receiving a node attachment message from an access point which controls whether the Foreign Agent initiates registration on behalf of the node, as well as whether the Foreign Agent initiates de-registration on behalf of the node. Neither of the cited references, separately or in combination, discloses or suggests sending a node attachment message from an access point to a Foreign Agent, where the node attachment message indicates whether the node is in a vicinity of the Foreign Agent. Moreover, neither of the cited references, separately or in combination, discloses or suggests a Foreign Agent initiating registration or de-registration on behalf of the node. Thus, neither of the cited references, separately or in combination, discloses or suggests a Foreign Agent initiating registration or initiating de-registration on behalf of a node depending upon the state of a node attachment message received from an access point. Accordingly, Applicant respectfully asserts that claim 1 is patentable over the cited art.

Claim 5 also recites a Foreign Agent receiving a node attachment arrive message from an access point indicating that the node is in a vicinity of the Foreign Agent. The Foreign Agent then composes a registration request on behalf of the node. When the Foreign Agent receives a registration reply packet, it sends an attachment acknowledgement message to the

access point indicating whether the node is registered with the Home Agent via the Foreign Agent. Neither of the cited references discloses or suggests the claimed invention. Specifically, neither of the cited references, separately or in combination, discloses or suggests sending a node attachment arrive message from an access point to a Foreign Agent, composing a registration request on behalf of a node by a Foreign Agent, or sending an attachment acknowledgement message to the access point indicating whether the node is registered with the Home Agent via the Foreign Agent. Accordingly, Applicant respectfully submits that claim 5 is patentable over the cited art.

It is important to note that the attachment acknowledgement message indicates whether the node is capable of receiving packets via the Foreign Agent. As set forth above with respect to claim 5, the node can receive packets if it is registered with the Home Agent. In addition, as recited in claim 7, the attachment acknowledgement message may also indicate whether the node has access to a subnet of the Foreign Agent, and can therefore receive packets via the Foreign Agent.

Claim 20 recites a Foreign Agent receiving a node attachment leave message from an access point that indicates that the node is no longer in a vicinity of the Foreign Agent. The Foreign Agent then composes and sends a de-registration message to the Home Agent on behalf of the node. Neither of the cited references, separately or in combination, discloses or suggests sending such a control message from an access point to a Foreign Agent or the composition and sending of a de-registration message by the Foreign Agent on behalf of the node. Accordingly, Applicant respectfully asserts that claim 20 is patentable over the cited art.

Claim 24 recites an access point that sends a node attachment arrive message to a Foreign Agent indicating that a node is in a vicinity of the Foreign Agent and receiving an attachment acknowledgement message indicating whether the node is registered with the Home Agent via the Foreign Agent. Neither of the cited references discloses or suggests an access point that is capable of sending such a message to a Foreign Agent, or receiving an attachment acknowledgement message indicating that the node is registered with its Home Agent via the Foreign Agent. Accordingly, Applicant respectfully asserts that claim 24 is patentable over the cited art.

Dependent claims 2-4, 6-19, 21-23, and 25-32 depend from one of independent claims 1, 5, 20, and 24 and are therefore patentable over Lee and Chiou for at least the same reasons. However, the dependent claims recite additional limitations that further distinguish them from the cited references. The additional limitations recited in the independent claims or the dependent claims are not further discussed as the above discussed limitations are clearly sufficient to distinguish the claimed invention from the cited references. Thus, it is respectfully requested that the Examiner withdraw the rejection of claims 1-32 under 35 USC §103(a).

In the Office Action, the Examiner rejected claims 14-17 and 33-39 under 35 USC §103 as being unpatentable over Lee in view of Chiou, and further in view of Wilkie et al, U.S. Patent No. 6,230,012, ('Willkie' hereinafter). This rejection is fully traversed below.

Willkie discloses a system for proxy mobile node registration. See Title. However, the system disclosed in Willkie requires that the terminal device signal a need for mobile data services. See Summary; col. 6 line 60 – col. 7, line 50. As such, the terminal device needs to be modified in order to support proxy mobile node registration.

In contrast, the claimed invention enables proxy registration to be performed on behalf of a node without modification to the mobile node. This is accomplished, in part, through control messages sent between the Foreign Agent and the access point. Since Willkie requires signaling from the node, Willkie teaches away from a system in which the node need not be modified. Moreover, Willkie neither discloses nor suggests the transmission of control messages between a Foreign Agent and an access point.

Claims 14-17 are dependent upon claim 5 and are therefore patentable for at least the reasons set forth above. In addition, the Examiner admits that Lee and Chiou fail to disclose the claimed feature of the proxy mobile node service supported in the communication link, the agent solicitation, and the agent advertisement extension. Willkie fails to cure the deficiencies of the primary references. Accordingly, Applicant respectfully submits that claims 14-17 are patentable over the cited references.

Claims 33 and 36 correspond to independent claim 1, and are therefore patentable for at least the reasons set forth above. Willkie fails to cure the deficiencies of the primary

references. Accordingly, Applicant respectfully submits that claims 33 and 36 are patentable over the cited references.

Claims 34 and 37 correspond to independent claim 5, and are therefore patentable for at least the reasons set forth above. Willkie fails to cure the deficiencies of the primary references. Accordingly, Applicant respectfully submits that claims 34 and are patentable over the cited references.

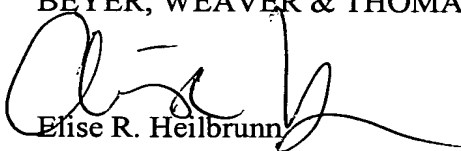
Claims 35 and 38 correspond to independent claim 20, and are therefore patentable for at least the reasons set forth above. Willkie fails to cure the deficiencies of the primary references. Accordingly, Applicant respectfully submits that claims 35 and 38 are patentable over the cited references.

Claim 39 corresponds to independent claim 24, and is therefore patentable for at least the reasons set forth above. Willkie fails to cure the deficiencies of the primary references. Accordingly, Applicant respectfully submits that claim 39 is patentable over the cited references.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388 (Order No. CISCP169).

Respectfully submitted,
BEYER, WEAVER & THOMAS, LLP


Elise R. Heilbrunn
Reg. No. 42,649

BEYER, WEAVER & THOMAS, LLP
P.O. Box 778
Berkeley, California 94704
Tel. (510) 843-6200